

Remarks

Summary of Office Action

Claims 1-53 are pending.

Claims 1-36 and 46-53 were withdrawn from consideration.

The Specification was objected to because the subtitle a “Brief Description of the Drawings” was missing.

Claim 37 was objected to based on informalities.

Claims 37-45 were rejected under 35 U.S.C. § 102(b) as allegedly anticipated by or, in the alternative, under 35 U.S.C. § 103(a) as allegedly obvious over U.S. Patent No. 4,097,153 to DeRemigis (“DeRemigis”).

Applicants’ Reply

Applicants have amended the specification to include the missing subtitle and respectfully submit that no new matter has been added.

Applicants have amended claim 37 to remove a typographical error and respectfully submit that no new matter has been added.

In accordance with the previous restriction requirement in this application, Applicants have cancelled claims 1-36 and 46-53 but reserve the right to prosecute these claims in another application.

Objections to the Specification

The Examiner objected to the Specification because the subtitle a “Brief Description of the Drawings” was missing. Applicants have amended the Specification to

include the subtitle as suggested by the Examiner. Applicants respectfully request the objection be withdrawn.

Objections to the Claims

The Examiner objected to claim 37 based on informalities. As suggested by the Examiner, Applicants have amended claim 37 to recite “at a first relatively low frequency.” Applicants respectfully request the objection be withdrawn.

Rejections of the Claims

The Examiner rejected claims 37-45 under 35 U.S.C. § 102(b) as allegedly anticipated by or, in the alternative, under 35 U.S.C. § 103(a) as allegedly obvious over DeRemigis. Applicants respectfully traverse this rejection.

Applicants’ inventive apparatus as claimed in claim 37 requires, *inter alia*, “a holder for a capillary cell adapted to contain a dispersion.” Therefore, Applicants invention is directed to an apparatus for determining the electrophoretic mobility in a **capillary cell**. As discussed in the specification, e.g., at paragraph [0010], when low frequencies of applied field (around 1 Hz) are applied to the capillary cell, the velocity of the particles are dependent on the position of the point of observation and follows an apparently parabolic form in the region away from the cell walls (as shown in Figure 2 of Applicants’ application). This is due to liquid flow known as an **electro-osmotic flow**, which is set up by the effect of electric charge on the internal walls of the capillary. The electro-osmotic flow results in major difficulties in measuring the electrophoretic mobility in a capillary cell. It is exactly this problem that Applicants’ invention overcomes.

DeRemigis, on the other hand, is directed to measuring the electrophoretic mobility in an sample cell which has a pair of parallel electrodes 24 and 25 and respective inlet and outlet orifices 28 and 30 through which a sample suspension is pumped (See col. 2, lines 65-col. 3, lines 1 and Figure 2). DeRemigis discloses use of a so-called Uzigeris cell, which is completely different from Applicants' capillary cell. DeRemigis' apparatus, therefore, actually teaches away from applicants use of a capillary cell because DeRemigis' cell includes an inlet and outlet orifice through which a suspension is pumped. DeRemigis' cell will not exhibit an **electro-osmotic flow** and will not have the associated problems in measuring electrophoretic mobility as in a capillary cell. Therefore, DeRemigis does not disclose or suggest use of capillary cell, and therefore neither anticipates nor renders obvious claim 37.

Additionally, claim 37 requires that the controller is adapted to "apply an electric field at a first relatively low frequency and at least a second relatively high frequency, the first frequency being low enough that better velocity distribution resolution is achieved in use than could be achieved at the second frequency, and the second frequency being high enough that the measured velocity distribution is **substantially unaffected by electro-osmotic flow**," and that the processor is adapted "in use to modify the particle velocity distribution spectrum obtained at the first frequency by **shifting it by an offset amount to remove the electro-osmotic velocity**, the offset amount being determined using information from measurements at both the first and second frequencies of field reversal."

The Examiner correctly admits that DeRemigis is silent with regards to using electric fields having two different frequencies. The Examiner, however, then asserts at page 4 of the Office Action that intensity is inversely proportional to frequency and that the different intensities of DeRemigis correspond to different frequencies of Applicants' invention. Applicants respectfully disagree with this position, and are aware of no such relationship

between the frequency and intensity, and request the Examiner to either reconsider his position or cite to evidence in support thereof. Therefore, DeRemigis does not disclose or suggest applying a first relatively low frequency and a second relatively high frequency electric field as Applicants' invention requires.

Further, claim 37 requires modifying the velocity spectrum obtained at the first frequency by shifting it an offset amount to remove the electro-osmotic velocity. As discussed above, DeRemigis neither discloses or suggests use of a capillary cell, and is directed to use of a different type of cell, and therefore, would not have an electro-osmotic velocity to remove. Accordingly, for at least this additional reason, DeRemigis does not disclose or suggest every element of claim 37 of Applicants' invention.

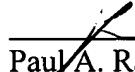
Claims 38-45 all depend from claim 37 and are patentable over the cited art for at least the same reasons discussed above.

Conclusion

Applicants respectfully submit that this application is now in condition for allowance. Reconsideration and prompt allowance of which are respectfully requested. The fee for a one (1) month extension of time is enclosed. If, however, any additional fee is due, or if any overpayment has been made, the Commissioner is authorized to charge any such fee or credit any overpayment, to our Deposit Account No. 02-4377. If there are any remaining issues to be resolved, Applicants respectfully request that the Examiner kindly contact the undersigned attorney for early resolution.

Respectfully submitted,

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